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TABLE OF CONTENTS

Graphics Disclaimer ..... ii

THE YEAR 2010: CHINESE MISSILES ROUT AMERICAN FORCES ..... 1

UNVEILING THE "BLACK SHIELD", by Cao Huaizheng and Bai Lihong ..... 6

CHINESE SATELLITES
LOOKING DOWN ON THE NANSHA ISLANDS ..... 20

CAN RECONNAISSANCE SATELLITES ACTUALLY RECOGNIZE PEOPLE? ..... 24

THE U.S. AIR FORCE "XO" ..... 30

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# THE YEAR 2010: CHINESE MISSILES ROUT AMERICAN FORCES

## Startling results

One day in May of 1994 a warm breeze blowing over green Rhode Island. The highest ranking U.S. Naval School is located here at Newport. What was unusual was that eight naval admirals and more than 40 captains and a large group of military strategists were gathered here to personally observe a war which was to occur fifteen years in the future....

To tell the truth, this was a simulated military exercise with China as the hypothetical enemy. The exercise simulated the year 2010. The two participants were the U.S. Navy's Seventh Fleet and China's PLA. The results of the simulated exercise shocked all the American observers - China's precision guided cruise missiles deployed on the coast and on the surface completely routed the U.S. Seventh Fleet with its advanced aircraft carriers.

After the exercise was over the elite of the American military circles solemnly published their views:

- China's military has a revolutionary spirit and is technologically very advanced. China may have already surpassed the United States in military strength.

- The Chinese units in the exercise struck beautifully, and the United States forces did not perform well because they were tactically and technologically suppressed by the other side.

- The United States may lose its monopoly on military technology in the 21st Century.

Just how powerful are China's cruise missiles? Naturally, this cannot be answered in a single simulation exercise, nor can it be answered b y all the talk following this exercise. However, the rapid development of China's anti-ship missiles has drawn the attention of all the military powers around the world including the United States.

Anti-ship missiles are one type of cruise missiles. Cruise missiles (or flying missiles) are divided into strategic and tactical missiles depending on their uses. They can be launched from the ground, air or from underwater against fixed or moving targets. The Gulf War made the U.S. Tomahawk cruise missiles famous. Their precision guidance and powerful attack forced the Iraqis to keep their heads under cover from the very beginning. How good, then, are the Chinese anti-ship missiles?

China began to develop anti-ship missiles in the fifties. They now form a family of anti-ship missiles of a number of types and multiple series. The most noted are the C101, C301 and C801 anti-ship missiles.

The Supersonic Pride, the C101

The C101 supersonic anti-ship missile, called the "Supersonic Pride", because of its ultra-low altitude concealment capabilities and Mach 2 ultrasonic speed is too much for even intercept missiles to defend against.

Using the French "Naval Sidewinder" and the British "Sea Wolf" intercept missiles against the C101 missile, even under ideal conditions if the enemy detects and tracks the missile, it has only one opportunity to intercept the missile. Furthermore, the intercept point is at a distance of 3000 meters from the enemy ship

where the C 101 dives to a height of only five meters off the water, and intercept time is extremely short. If a ship board gun system is used to intercept the missile, it has only a one or two second intercept time. Clearly, a ship or intercept missiles are almost ineffective in intercepting multiple C101 missiles, and even if the enemy uses ECM countermeasures, he has only a little over ten seconds of jamming time. This will not have much effect on a missile like the C101 with strong counter jamming capabilities.

When the C101 missile hits the enemy ship, its 300 kilogram warhead, which is larger than similar foreign anti-ship missiles, will generate a destructive blow to the enemy ship. A more scientific description is: One C101 missile can sink or heavily damage a destroyer class surface ship.

The C301 Assassin

If military fans are not satisfied with saying that one C101 missile can sink or heavily damage a destroyer, then the C301 anti-ship missile can be called an "Assassin".

The warhead of this missile is a high energy explosive shaped charge weighing up to 512 kilograms. It has frightening power. Actual tests have indicated that a hit by one C301 missile can sink a destroyer or heavily damage a cruiser. Two hits can sink a cruiser. Also, the C301 missile has a range of 130 kilometers. It flies just over the water and has strong counter jamming capability. Its supersonic flight makes it capable of surprise attacks on large and medium sized ships, thus controlling costal and water areas. Its wave-hopping ultra low altitude flight only allows the surveillance systems of enemy vessels an extremely short time to react, greatly reducing the effectiveness of enemy ECM and organized intercept. The C301 missile's internal guidance radar

has strong capability to withstand waves and jamming. It can withstand all sorts of complex environments, so it can be used in all types of weather.

These facts indicate that the C301 supersonic anti-ship missile is an advanced coastal defense weapon of the nineties. It has attained the advanced levels of similar missiles around the world in the nineties.

The Fierce "Flying Fish" C801

The French "Exocet" missile became famous in the Falkland Island war in 1982. One Argentinean Exocet" missile finished the British "Sheffield" cruiser and became a classic example for naval battles.

China's C801 missile which is of the same type as the "Exocet" is a multiple use missile. It is superior to the french "Exocet" in a number of aspects. What is interesting is that this conclusion was drawn by the Americans. It has been said that the Americans obtained eight Chinese C801 missiles through a variety of channels and tested them against French "Exocet" missiles. The results were seven hits out of eight missiles, and the "Exocet" missiles only scored four out of eight. Also, the C801 is superior to the "Exocet" in warhead power and counter jamming capability. Finally, the United States came to the conclusion that the Chinese C801 is better than the French "Exocet" missile.

The C801 missile is a multiple use anti-ship missile which flies at high sub-sonic speeds and at a very low height over the ocean. It can be mounted on surface ships or submarines, and can also be launched from aircraft. The improved version, the C802, can also be launched from shore as a shore-to-ship missile. This

greatly enhances the flexibility and attack capabilities of the C801 missile.

It also uses a semi-armor piercing high explosive warhead which can penetrate the hull of the enemy ship, exploding into the holds, greatly increasing the explosive power. A single hit by one of these missiles can sink or heavily damage a large enemy surface vessel. Even foreign military experts who had believed that China's weapons were backwards have had to acknowledge these achievements by China's anti-ship missile industries.

A critique was published in the "Asian Defense Weekly" which stated that "China's C801 missile could quite possibly be the most advanced.....and its improved version compares to the United States "Harpoon"-I.

The British "Janes Defense Weekly" also stated that: "The C801 cruise missile is a fine example of modern technology which has gained respect for the Chinese weapons industry." All Chinese should be even more confident, now that we have anti-ship missiles of the international advanced levels of the nineties to protect our national security and territorial waters. As our national defense science and technology continues to grow, we will hold our heads high as we march into the 21st century.

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# UNVEILING THE "BLACK SHIELD"

TRANSLATED BY: Cao Huaizheng and Bai Lihong

There was an article in the January, 1995 issue of the United States "Air Force" Magazine titled the "Black Shield".

Notation in original article: This article was taken from a classified Central Intelligence Agency publication "Intelligence Research" Fall 1970-71 which first published "Secret Research on the A-12 Plan". This article was written by Central Intelligence Agency analysts under the pen name of Thomas P. Maijinni'enqi (Phonetic). This article was only recently declassified.

Original text: The unusual history of the United States Central Intelligence Agency A-12 Top Secret aircraft activities code-named "OXCART" and "BLACK SHIELD" are just now being unveiled after having been out of service for a number of years and its successor, the SR-71 having been gone from the Strategic Air Force for four years. During the Vietnam War the A-12 aircraft used its unprecedented speed and capabilities to demonstrate that it was an invaluable reconnaissance tool. It cruised at speeds of Mach 3 and at altitudes of up to 27,432 meters. At this altitude it had a range of 5560 kilometers. On a reconnaissance flight at this altitude and this speed it was removed from most threats. The A-12 often cloaked itself in USAF clothing when it conducted Top Secret missions. In 1967 if flew at Mach 3.1 over North Vietnam to determine whether or not North Vietnam had deployed surface-to-surface missiles.

On May 31, 1967, a long narrow highly classified American aircraft taxied down the runway at an Air Force base on Okinawa. Even though it was raining cats and dogs, the pilot was given

permission to take off. Several hours later, this Top Secret aircraft had completed two missions over North Vietnam air space 2414 kilometers away and returned to its base.

This aircraft was developed for the CIA by Lockheed's Skunk plant. It opened a new era in aerial operations. The first mission of this A-12 reconnaissance aircraft was conducted at a speed of Mach 3.

In early spring of 1967 Washing was still very much concerned that the North Vietnamese Communists might have deployed lethal surface-to-surface missiles along its borders in preparation for an attack on U.S. bases in South Vietnam. If the North Vietnamese had actually deployed these missiles, it was still uncertain if the United States was capable of detecting them. This uncertainty worried American leaders. The United States Lyndon B. Johnson secretly solicited opinions concerning this.

The Central Intelligence Agency suggested using their newest secret reconnaissance aircraft, the A-12, code-named "OXCART". This aircraft was long and slender with huge jet engines and a prominent narrow nose which attracted attention. It was an aircraft of revolutionary changes, and was capable of flying at speeds of Mach 3. It could fly 4830 kilometers without aerial refueling. With most of its fuel spent, it could continue to cruise at an altitude of 27,432 meters. The huge Q cabin in front of and behind the pilot was used to carry large cameras and sensors. The Central Intelligence Agency pointed out that the A-12 aircraft cameras were far superior to the cameras on drones or the U-2 spy plane, and that the A-12's safety factor was much higher.

In 1960 Frances Gary Powers was shot down while piloting a U-2 spy plane while conducting a mission over the Soviet Union. After

this, American authorities were very careful about reconnaissance by piloted aircraft flights over unfriendly country airspace. Even so, the Secretary of State and Defense Department officials changed their minds and decided to take the chance.

The first thing they did was to select pilots for the new adventure. The A-12 pilots had to be especially good. This was not only because the aircraft had unprecedented capabilities, but also because they had to fly reconnaissance missions. Air Force general Duo'en Fuolijinge (phonetic) drew up pilot selection standards in accordance with suggestions by the Lockheed designer Carry Johnson and CIA headquarters.

The pilots had to be able to pilot the newest high performance fighters. They had to be emotionally stable and be very motivated. They had to be between 25 and 40 years old. The dimensions of the cockpit of the A-12 dictated that the pilot be no taller than 1.83 meters and weigh no more than 79.5 kilograms.

The records of all the pilots in the Air Force were reviewed. The pilots went through psychological analysis, physical examination and the selection standards were strictly adhered to, eliminating a number of pilots. After preliminary evaluation, a list of 16 nominees was drawn up. The Central Intelligence Agency performed a thorough and detailed security check and medical examination of the men on this list.

The Central Intelligence Agency interviewed those persons willing to carry out a highly classified program involving an extremely advanced aircraft. In November of 1961, five of these 16 men were assigned. More had to be selected.

After the final screening, a total of 11 pilots were selected.

They were William L. Sikeliyasi (phonetic), Kennisi S. Kelinsi (Phonetic), Ward Lei (phonetic), Ron Ward, Xiaomeiqin Woyinwodiqi (Phonetic), Jack W. Weikesi (phonetic), Leonard L. Leidun (phonetic), Dennis B. Shaliwen (Phonetic), David P. Yang (phonetic), Francis J. Moli (phonteic) and Lasaier Sikete (phonetic).

After selection, the Air Force and Central Intelligence Agency arranged their transfer and assignment to conceal the pilot training and lay the basis for their transfer from military to civilian. They received the same salary and hazardous duty pay as U-2 pilots.

The United States first considered using the A-12 over Cuba. In early 1964 the Central Intelligence Agency Planning Headquarters began an emergency plan for a flight over Cuba. The plan was code-named "SKYLARK". An accident prevented this plan from being implemented, but in August of that same year the Central Intelligence Agency instructed that preparations be made to conduct an emergency "SKYLARK" operation on November 5. The purpose of this operation was to perform a reconnaissance mission at Mach 2.8 and an altitude of 24,284 meters. After major modifications on the aircraft, the team simulated the Cuba mission in training flights, and the aircraft had limited capability for the "SKYLARK" emergency operation. Even though the number of prepared aircraft and pilots were less than what the plan called for, the team was to fly over Cuba two weeks after receiving their orders.

Despite these preparations, the U-2 aircraft had demonstrated that they were capable of this mission. Therefore, the Americans decided to reserve the A-12 aircraft for more critical uses.

The "Black Shield Plan"

In 1965 the Central Intelligence Agency began drafting a detailed plan for operations in Asia. At that time the United States had already considered using "OXCART" to perform reconnaissance of Chinese military activity. This plan was code-named "Black Shield". It required that "OXCART" be based at Misawa Air Force Base on Okinawa. The first stage of the plan called for three aircraft and about 225 men. It was planned that they go to Okinawa twice a year, staying there six days each time. After these operations had developed an excellence sequence of operations, then "Black Shield" would become a permanent contingent at Misawa. At the request of the Central Intelligence Agency, Lockheed prepared aircraft as quickly as possible. On December 21, 1966, the A-12 conducted test flights which satisfied the Central Intelligence Agency. The Lockheed test pilot Peter Parks flew an "OXCART" 1,412 kilometers in six hours, demonstrating the high performance capabilities of the A-12.

He took off from the test area in Nevada and flew north over Yellowstone Part, turned east and flew over Bismarck in the Dakotas, then flew over Duluth, Minnesota, turned south and flew over Atlanta and Tampa, turned northwest to Portland, Oregon, turned south and flew back over Nevada, flew east again over Denver and Saint Louis and then to Knoxville, turned around and returned to Nevada. This six hour flight set a record which could not be matched by any other aircraft.

During this and later test flights, sonic explosions did not cause any problems. Even though the inhabitants of a small town 48 miles from the Nevada test center were bothered when the aircraft broke the sound barrier while climbing, a slight change in the aircraft route reduced this to a minimum. At high altitudes this

aircraft generates no more a certain amount of noise at ground level, and because this aircraft cannot be seen by the naked eye, no-one connected this sound with its source.

In May of 1967 when the State Department and the Defense Department approved "Operation Black Shield", Richard Helms, Director of the Central Intelligence Agency, made another formal proposal to deploy "OXCART". He also made this proposal at the "Tuesday Lunch" of President Johnson and his security advisors on May 16, and received the president's approval. The president directed him to continue with this plan. A little later that same day, presidential advisor Woerte Luosituo (phonetic) formally announced the president's decision, "Operation Black Shield is a go".

The next day, the air transport workers on Misawa began to carry out this plan. On May 22, the first A-12 reconnaissance aircraft, Number 131, took off from the United States and landed at Misawa six hours and six minutes later without making a stop en route. On May 24, the second A-12, number 127, flew from the United States to Misawa, taking five hours and 44 minutes. The third A-12, number 129, took off from the United States. At first everything was normal, but over Wake Island the pilot noticed problems in the internal navigation and communications system controls and landed at Wake as a precaution. ?The emergency rescue team which had been deployed there in advanced played a very good support role in the safe landing of the aircraft. The next day the aircraft continued on to Misawa.

The American ambassadors to the Philippines, Taiwan, Thailand, South Vietnam and Japan and the CIA station Chiefs there, as well as the Station Chief and high ranking officials on Okinawa were notified of this plan. Also notified were the Prime Minister of

Japan, the Premier of Thailand and the "President" and "Minister of Defense" of Taiwan. Air Force commanders of Taiwan and Thailand were also briefed. They all expressed their support.

Preparations to launch "Black Shield"

On May 29, 1967, the "Black Shield" contingent on Misawa completed preparations for an operational mission. Under the direction of Air Force Colonel Xiu Silaite (phonetic) the 260 men were deployed at the "Black Shield" facilities. With the exception of the hangar which was one month short of completion, all other preparations were completed. The next day, the contingent received orders to stand by and prepare to launch a mission on May 31.

During this first "Black Shield" operation, two routes were flown. One was over North Vietnam, and the other was over the military demarkation line between North and South Vietnam. The flight lasted for three and one-half hours. It was flown at a speed of Mach 3.1 and at an altitude of 24,384 meters.

The CIA was satisfied with the reconnaissance results. Seventy of 190 known SAM missile sites and nine other primary targets were photographed. No radar signals were detected, indicating that the first mission was conducted without being detected by China or North Vietnam. By the middle of July, the A-12 aircraft made a number of reconnaissance flights, demonstrating with very high believability that North Vietnam had not deployed surface-to-surface missiles.

From May 31 to August 15, 1967, "Black Shield" was in a state of readiness, during which it made seven flights. Of these seven missions, four detected radar tracking signals, that is to say, on four occasions it was detected by enemy radar. However, on no

occasion did it encounter any opposing actions.

The CIA Planning Headquarters in Washington planned, directed and controlled all operational missions. It kept a constant watch on weather in target areas. At four every afternoon Washington time it would convene a mission watch conference. If weather forecasts indicated that a flight could be permitted, then the Misawa contingent was ordered to readiness status and a flight route was issued.

The readiness signal was issued 28 to 30 hours prior to take off. Twelve hours prior to take off, the target weather was verified a second time. If weather was still permissible, the mission sequence was continued. The decision to fly or not to fly was made two hours prior to take off, and this decision was relayed to Misawa. The final decision was determined not only by the weather in the target area, but also took into consideration the weather in the refuelling zone and the take off and landing bases.

Once the readiness notification was received, the A-12 aircraft activities and maintenance operations began in earnest on Misawa. One primary aircraft and one primary pilot were selected as well as one reserve aircraft and one reserve pilot. The aircraft were thoroughly inspected and maintained.

On the evening prior to the flight the pilot would be briefed in detail on his route. On the morning of the flight a final conference was convened with briefings on state of the aircraft and its systems, the weather at the last minute, related intelligence and changes in the flight plan. During the last two hours before the flight the primary pilot underwent a medical examination and finally put on his flight suit and was escorted to the cockpit. If

there were any problems with the primary aircraft, the reserve aircraft could carry out the mission one hour later.

A typical route for the "Black Shield" mission over North Vietnam was to take off from Okinawa, and refuel shortly thereafter. Then make one or a number of photographic runs over the target area and then refuel once more over Thailand and then return to Okinawa. At such high speeds, the "Oxcart" only took two minutes and 30 seconds to make two photography runs. However, American officials knew that the turning radius of the A-12 was very large - 138.5 kilometers, and it was possible that it could penetrate China's airspace. Once the "Oxcart" returned to Misawa, the photographic films were unloaded immediately and placed into crates and airlifted to another base. In the early stages of the missions, the photographic film was sent to Eastman Kodak in Rochester, New York, for processing, and the photographic intelligence delivered to the American military headquarters in Vietnam within 24 hours after the mission.

SAM missile firings

From August 16 to December 31, 1967, A-12 aircraft were placed on alert 26 times and flew 15 missions. On September 17 a North Vietnam SAM missile base used detection radar to track an A-12, but its FAN SONG guidance radar did not pick it up. During a flight in October a North Vietnamese SAM missile base fired a missile at an A-12 "Oxcart" for the first time, but did not hit its target. The results of the "Oxcart" photography showed a puff of smoke at a sam missile site, the missile and the missile tail stream. The A-12 aircraft ECM equipment effectively countered the missile launch.

During a flight in October, the pilot, Dennis Shaliwen (phonetic) on his first pass over North Vietnam noticed he was

being tracked by enemy radar. Two bases prepared to launch missiles, but neither were launched, and during his second pass, at least missiles were launched at the "Black Shield". The photographs taken by "Black Shield" show the stream of each missile. He could see the smoke behind these missiles during their flight and three of them explode near him. When he returned to base his aircraft was checked over and it was discovered that a metal plate had penetrated the bottom of the right wing in the direction of the fuel tank frame on the right wing. This metal plate was not from the warhead, but might have been a piece of shrapnel from the exploding missiles he had seen.

In the first three months of 1968 "Oxcart" was placed on alert 15 time but only flew six missions. Four of these missions were over North Vietnam and two were over North Korea. The first mission over North Korea was on January 16, 1968, three days after North Korea Communists had seized the American Navy spy ship "Pueblo". The situation was very tense. The mission of the "Black Shield" pilot was to perform reconnaissance concerning whether or not North Korea was preparing large scale offensive action following this incident. It was clear that China was tracking the actions of "Black Shield", but did not launch a missile at the aircraft.

The United States State Department was concerned about the possible diplomatic effects should an aircraft fall on enemy territory, so they were unwilling to approve any further plans to send "Black Shield" for reconnaissance over North Korea. General Paul Bakalisi (phonetic) reported on mission planning to Secretary of State Dean Rusk. He also ensured that the aircraft would be out of North Korean airspace within seven minutes time. The general explained that even if the aircraft had any problems during flight, it could not land on North Korean or Chinese soil. Secretary of

State Rusk them made some instructions for revising the flight plan, thus becoming the highest ranking planner for this program.

From April 1 to June 9, 1968, "Black Shield" was put on alert twice in preparation for flying over North Korea. However, only one of these flights was approved. That flight was on May 8. This was the last mission of the "Black Shield" operation. The problem was that it was too expensive.

The end of "Operation Black Shield"

The Budget Bureau had been expressing its concerns for a number of years over the past and planned expenditures for the Central Intelligence Bureau A-12 "black Shield" single seater reconnaissance aircraft and the United States Air Force SR-71 "Black Shield" two seater reconnaissance aircraft. It doubted whether the Air Force needed so many aircraft. It also doubted whether an independent squadron of Central Intelligence Agency A-12 aircraft was required. In order to actually achieve a number of budget reductions, the termination of the A-12 program was unavoidable.

The United States Air Force played a major role in assisting in the implementation of the "Oxcart" program. It provided financial support, provided aerial refueling, provided facilities at Misawa and air lifted the "Oxcart" personnel and supplies to Okinawa for their operations over North Vietnam and North Korea. It also a squadron of A -11 aircraft from Lockheed. These aircraft were modified into two seater aircraft. and later called SR-71 aircraft. The plan called for them to be operational in 1967.

The designated mission of the SR-71 aircraft was to perform

"post attack reconnaissance, that is, to determine the enemy situation after the mutual use of nuclear weapons. However, there does not seem to have been a very great possibility for SR-71 aircraft to be put to such use. Naturally, the SR-71 could also conduct ordinary reconnaissance missions.

However, for these purposes, the A-12 had some obvious advantages over the SR-71. It had a crew of only one, and had space to install more and better cameras as well as different types of intelligence collection equipment which the SR-71 could not carry at that time. It was undoubtedly the most effective reconnaissance aircraft in existence at that time. It seems to have been the most effective reconnaissance aircraft for a number of years to follow. In addition, it was controlled by civilians and could be used secretly. At least it did not require a large number of personnel like the Air Force aircraft.

The United States Air Force purchased the SR-71, blocking the path of development for the "Oxcart". This was because it signified that the Air Force was footing part of the bill and the cost of each aircraft was less expensive because more were being produced. Thus, because of budgetary reductions and other reasons, the existence of the SR-71 signalled the demise of the "Oxcart".

In the months following the first mission over North Vietnam on the last day of May, 1967, the "Oxcart" displayed outstanding technical capabilities. It also displayed outstanding operational capabilities. American officials were not very comfortable when they heard the news that the "Oxcart" was to be done away with.

Key congressmen and senators, members of the President's Foreign Intelligence Advisory Council and members of the President's Scientific Advisory Council all expressed their

concerns. Therefore, the plan to eliminate the "Oxcart" was delayed. In the spring of 1968 a new study was completed on the feasibility and cost of the "Oxcart" program. Four options for maintaining A-12 activities were proposed.

Even with all this effort, it was too late. In May of 1968 Secretary of Defense Clark Clifford restated the decision to end the "Oxcart" program and put the aircraft in storage. This decision was approved by the president.

"Black Shield" returns to America

In early March of 1968 the United States Air Force SR-71 aircraft began to be stationed on Misawa and to take over the "Black Shield" mission. The A-12 were placed in reserve in support of the SR-71 aircraft. After "Oxcart" had completed its final operational mission, the "Black Shield" contingent on Misawa was notified to get ready to return to the United States.

The Central Intelligence Agency Planning Headquarters chose June 8, 1968 as the day for "Oxcart" to return. At the same time, it demanded that the number of flights by A-12 be limited to ensure flight safety and pilot flight efficiency. "Black Shield" aircraft were sealed in storage upon return to the United States. Those A-12 aircraft already in the United States were placed in storage on June 7.

During the final few days on duty overseas, the "Oxcart" aircraft came under attack once more. This was a strange tragedy. On June 4, pilot Jack Weikesi (phonetic) flew number 129 "Black shield" aircraft from Misawa for a test flight after a change in engines. He flew 837 kilometers east of Manila from where he contacted Misawa, and after this there was no trace of him.

Search and rescue found nothing. The cause of the accident could not be determined, and is still a mystery. At the time the official announcement concealed the truth, stating that the missing aircraft as an SR-71. A few days later, the remaining two "Black Shield" aircraft returned to the United States from Okinawa and placed in storage with the other A-12 aircraft.

On June 26, 1968, a ceremony was held on a secret base in Nevada to commemorate the end of the "Black Shield" program. Lockheed's designer of the A-12, Clarence Gary Johnson expressed his deep sadness over the termination of the program. Designing the "Oxcart" had brought him the greatest of fame. In honor of his contributions to United States aviation and space sciences and to national security, the United States government had awarded him with the "Presidential Freedom Award" in 1964 and the "National Science Award" in 1966.

At this ceremony CIA deputy director Admiral Taylor presented "Intelligence Awards" to the pilots for their participation in the "Black Shield" program. Jack W. Weikesi (phonetic) award was accepted by his widow.

Colonel Silaite (phonetic) and his deputy Meinade N. Amengdesen (phonetic) were awarded the Air Force "Meritorious service Medal". The Air Force "Outstanding Unit Award" was given to the "Oxcart" contingent - the 1129th Special Operations Squadron First Detachment - and the United States Air Force Support Team.

These pilots and their wives attended the ceremonies. At the ceremonies the wives and their husbands' commanding officers learned for the first time that these heroes had conducted secret activities for almost a year.

# CHINESE SATELLITES LOOKING DOWN ON THE NANSHA ISLANDS

For a period of time, the Philippines government has used its armed forces to detain Chinese fishing ships and fishermen in their normal operations in the waters of the Nansha, forcibly removing the signs of sovereignty China had erected on the Nansha Islands. This series of serious violations of our sovereignty has created a tense atmosphere in the Nansha Islands and the nearby waters.

The differences over the Nansha have existed for a long time. China's space workers, representing the best of China's scientists and technicians, have used their own high technology methods to keep a close watch on everything going on in the Nansha Islands. The Beijing Satellite Information Engineering Institute and other units have used photographic material brought back from the recoverable national survey satellite China launched in 1985 with the help of multiple element information combining technology to successfully map out the "Northern Nansha Photographic Nautical Charts". These are of major significance in furthering the economic development of the Nansha Islands and the neighboring waters, for navigating the waters there and for safeguarding the sovereignty of China's territorial waters.

The Northern Nansha Islands are composed of more then 50 islands lying within the area described by 9°41'~11°31' north latitude and 113°49'~115°03' east longitude. These waters cover an area of about 30,000 square kilometers. The islands and reefs are composed of coral. The marine resources of this region are abundant, and there are minerals and oil under these waters. The Northern Nansha Islands are centered around Taiping Island, 550 nautical miles north of Yulin, 487 nautical miles east of Manilla and 843 nautical miles southwest of Singapore. It is a vital

communications hub in China's South China Sea routes and a national defense forward outpost. It occupies an extremely important economic and military position.

Because of their military and economic importance, the Nansha Islands have always been attractive to other nations, and Vietnam, the Philippines and other nations have already unlawfully occupied a large number of these islands. The Nansha Islands have historically been sacred Chinese territory. It is the sacred mission of the Chinese armed forces to recover the Nansha Islands in their entirety.

In view of this situation, a complete understanding of the geography of the region is of prime importance. However, the current "Eastern Nansha Satellite Photographs" are small scale, and positions can be precisely determined. They do not reflect the topographic features of the islands and reefs. There is also no water depth information or other navigational data, so they cannot meet the requirements for navigation. The "Maps of the Nansha Islands" published in 1987 by the State Bureau of Surveying and Mapping lack recent survey data so the boundaries of the islands and reefs are unclear and there are major errors in their positions. Looking at all these materials we can easily discover discrepancies between the various maps in the shapes and numbers of islands.

Focussing on these problems, China's space agencies used multiple element information combining technology , made full use of the high resolution and reliability of national territory satellite pictures. At the same time, they used current sea charts and actual depth measurement data to have a computer automatically generate colored layered depth charts. Then they performed such computer processing as geometric correction, information matching

and inlaying of the satellite photographs and the generated depth charts, finally generating the "Northern Nansha Photographic Sea Charts".

The Northern Nansha Photographic Sea Charts" are new maps compiled using satellite remote sensing technology to survey and map the Northern Nansha Islands. This has overcome the problems of the large amount of work required and the long production cycle of conventional surveys as well as not being able to go to occupied islands, and has resulted in the timely gathering of the newest materials on the current geographical status of the islands and reefs. Using multiple element information combining technology to compensate for the poor capability of satellite images to penetrate water depth, they drew up photographic sea charts which included such key elements as islands and reefs, actual depth soundings, ocean currents and objects which could assist in navigation, thereby opening up a new area of application for national territory satellites.

Tests have shown that the maximum positional error within the "Northern Nansha Photographic Sea Charts" is less than one kilometer, which is more precise than the sea charts published by the United States in 1984. The Photographic Sea Charts errors in current sea charts. For example, in the Photographic Sea Charts Chigua Reef and Guihan Reef are separated by water and are 3.1 kilometers apart at the narrowest point. In the United States sea charts, however, they are shown to be connected. The Photographic Sea Charts truly reflect the shapes of the islands and reefs, while they are only generalized in the United States sea charts. The Photographic Sea Charts truly reflect the topography of the islands and reefs and their minute topographical features while the United States sea charts do not provide any topographical information.

The "Northern Nansha Island Photographic Sea Charts" have been formally been presented to the agencies of the State Council and the Central Military Commission, the commanders of the various headquarters and the Navy fleets, bases and the naval garrison districts for their use. They have been widely used in operational command, ocean surveys, ocean map revisions and navigation with market social and economic benefits.

# CAN RECONNAISSANCE SATELLITES ACTUALLY RECOGNIZE PEOPLE?

Space technology which began in the fifties is an important indicator of the rapid development of modern science and technology. The development on this basis of military space vehicles has also been very rapid. At the present time there have been a total of more than 4300 space vehicles successfully launched into orbit by a number of nations around the world, and 70 percent of these have military applications. The roles of military space vehicles are becoming more and more outstanding, and the military struggles have expanded from close in space to outer space. Outer space may become a fourth dimensional battlefield, following the ground, sea and air.

## United States and Russia monopoly of military reconnaissance satellite intelligence

The Gulf War of 1991 was a classic modern war. Even though this war did not see a single round fired from space, the fields of reconnaissance, espionage and intelligence, warning and control, communications, command and control and guidance and positioning all made use of satellites. The front line units made direct use of satellite intelligence, but only the United States actually made use of military satellites. It is said that the United States secretly gave Saudi Arabia satellite reconnaissance pictures of Iraqi troops stationed along the Saudi border following their invasion of Kuwait in order to explain the necessity of american forces entering the Middle East. In addition to the United States, the other country with military reconnaissance satellites is Russia. These two countries have never made public the pictures taken by reconnaissance satellites, but have consistently made use of them to control international opinion. The news media has described the military reconnaissance satellites as nothing short

of miraculous.

The myths of military reconnaissance satellites

Reconnaissance satellites can be divided into imagery reconnaissance satellites whose purpose it is to obtain image intelligence, electronic reconnaissance satellites which receive the enemy's electromagnetic wave and collect electronic intelligence and ocean survey satellites which monitor the oceans. In the past photographic reconnaissance satellites were used, and the films from the high performance cameras was recovered and developed and analyzed on the ground. Now, military reconnaissance satellites use television cameras to photograph the surface and convert the images to data signals which are transmitted to the earth over electrical waves. This mode is not restricted by the film used, length of activity, and can obtain images at any time. Digital image reconnaissance satellites using infrared rays can photograph day or night and can see through camouflage, but cannot photograph targets under cloud cover. In order to make up for this deficiency, radar imaging reconnaissance satellites have been developed to allow the satellites to carry large synthetic aperture radars to photograph the surface. However, electrical waves with a fairly long wavelength have a lower resolution than light waves. Therefore, imagery reconnaissance has continued to be the primary strengths of reconnaissance satellites and the focus of development.

The news media and fictional novels as well as certain military explanations have exaggerated the reconnaissance capabilities of imagery reconnaissance satellites. There are certain myths concerning reconnaissance satellites that they can "recognize every face in a crowd", that they can clearly read a license plate on an automobile", that they "can track the movements

of a certain individual", that "there is no corner on the face of the earth which is not under constant surveillance by reconnaissance satellites". According to satellite technology theory, these news stories are without foundation, and can be called fantasy.

The surface resolution of reconnaissance satellites in orbit is determined by the altitude of the satellite. The focal length of the optical system is inversely proportional to the resolution of the object. Based on the standard of surface resolution of 10 CM within the atmosphere, then if reconnaissance satellite technology could attain this standard, that would mean that the satellites would have a surface resolution of 10 CM, and the satellite would only be able to read letters 10 CM high. Similarly, it would not be able to read the headlines of a newspaper. Also, the satellite is circling the earth once every 90 plus minutes, and is not able to monitor a single point on the earth for a long time. This shows that satellites are not all powerful. However, reconnaissance satellites can monitor a certain area of special concern to make the best use of their power of intimidation.

Earth synchronous satellites must be about 35,800 kilometers above the surface of the earth at the equator in able to keep in synch with the earth. There is no possibility of a satellite remaining stationary above a certain country not on the equator. This is common knowledge in space physics. Even though reconnaissance satellites do not have their legendary super intimidation capabilities, it is possible to use reconnaissance satellites to collect highly precise intelligence of major strategic significance. For example, maps, drawings and pictures in the "Soviet Military Forces" published by the United States Department of Defense are surprisingly similar to the actual

situation which was learned later. The credit for this is primarily due to the reconnaissance satellites.

Modern warfare is based on reconnaissance satellites

If reconnaissance satellites have a surface resolution of greater than 10 CM do they lose their significance in the collection of intelligence? Actually, this standard was only achieved after the successful launch of the KH-8 military reconnaissance satellites by the United States in the late sixties with its advanced reconnaissance technology. Prior to this military reconnaissance satellites with an even lower resolution played a major role. We can imagine that even if satellite surface resolution was two to three meters it would be possible count the numbers of tanks or aircraft in a certain place. If the satellite had a resolution of one meter, it would be possible to recognize the general size of tanks and aircraft and perhaps make out their capabilities. If it were possible to differentiate between the F-15 and F-18 which differ in swept-back wings and straight wings, then it would also be possible to differentiate between the F-15 and F-16 which differ in the width of the wings. If one can learn the total number of forces and weapons of the enemy and monitor its unit deployment and movements, then reconnaissance satellites with a resolution of about one meter would be fully up to this task. The military reconnaissance satellite technology being developed by countries around the world all falls within this range.

Scientifically advanced nations are striving to develop military reconnaissance satellites

Facing the monopoly of the United States over satellite reconnaissance intelligence, France, Italy and Spain have jointly entered into the "Apollo" reconnaissance satellite plan and have

called for this plan to be promoted to a joint plan for Western European allies. A long time ago there were people in Japan calling for Japan to develop her own military reconnaissance satellites, and detailed investigations were made into legal and financial problems. Recently, there have been new proposals that Japan should have her own early warning satellites for the sole purpose of assisting Japan to achieve "major political nation" status. For a period of time recently the news media has once more disclosed cooperation between Israel and South Africa on the development of military reconnaissance satellites. Brazil is also planning on having its own military reconnaissance satellite.

In Europe, the original "Apollo" plan was based on France's resource survey satellite. From the successful launch of the first satellite in 1986 until the present, there have been three satellites placed into orbit. The imagery of these satellites is primarily used commercially. They can be used for resource surveys of the earth, monitoring the environment, mapping and monitoring military targets and reconnaissance. The surface sensing footprint is 60 kilometers wide. The satellite has a surface resolution of 10 to 20 meters.

Japan is also pursuing a survey satellite with capabilities similar to those of the French resource survey satellite. It is estimated that the ADEOS satellite to be launched in 1996 will be one of these. It will photograph 30 kilometer wide sections of the earth from orbit 800 kilometers above the equator. Its doppler mode surface resolution will be 16 meters. Fully optic mode will have a surface resolution of 8 meters. If the satellite is dropped to 400 kilometers, resolution could be twice as good. By the same reasoning, if a reconnaissance satellite were 200 kilometers nearer the point being observed, the surface resolution would be improved to two to four meters, and by adjusting the satellite sensing

system it could meet the basic requirements of a military reconnaissance satellite.

Illustration on left: Photograph by military reconnaissance satellite with a surface resolution of 10-1 meter of an F-15 fighter.

Illustration on right: Photograph of T-55 tank by a military reconnaissance satellite with a surface resolution of 5-0.5 meters.

(Translator's note: These illustrations are missing from original).

There may be fatal defects in military reconnaissance satellites. Commonly speaking, reconnaissance satellites are limited in the number of passes they can make, and cannot provide continuous surveillance of the same area. Reconnaissance methods used aboard current satellites are still not able to completely and accurately distinguish camouflage and decoy targets. They still lack effective measures for performing long range reconnaissance of biological and chemical weapons. The efficiency and technology of rapid transmission of reconnaissance intelligence, photo interpreting and target recognition still requires improvement and enhancement. It must be noted that up to the present time, in military conflicts or regional wars, space reconnaissance has not yet encountered intense countermeasures, and the weaknesses and problems of military reconnaissance satellites have not yet been fully revealed.

# THE U.S. AIR FORCE "XO"

Of all the many deputy chiefs of staff in the U.S. Air Force, the Deputy Chief-of-Staff for Plans and Operations, called the "XO", has attracted special attention. This is not only because the "XO" also refers to a type of liquor, but because of his special position in the U.S. Air Force.

On October 7, 1994, high ranking officers in the United States Air Force convened a major conference in Colorado. It was at this time that the news came out that Iraq had sent forces to its border with Kuwait. Air Force Deputy Chief-of-Staff, General Yuebifu W. Lasidun (phonetic) quickly reported this over secure telephone. he had no doubt that the situation was very critical.

General Lasidun (phonetic) boarded a plane in the middle of night and returned from Colorado to Washington. During the flight he held a telephone conference with Defense Department weapons experts, logistic experts and planning experts exploring the unclear situation of Iraq's military moves.

Early the next day, Lasidun (phonetic) held an emergency meeting at the Air Force Staff Department, unifying views and preparing a report for the Joint Chiefs.

The Secretary of the Air Force Weidenuo'er (phonetic) and the Air Force Chief of Staff General Maikepite (phonetic) returned from Colorado on Saturday. General Lasidun (phonetic) met them at Andrews Air Force Base in Maryland outside the District of Columbia. After returning to Washington, he urgently reported to them on the moves by the Iraqi Republican Guard and the status of American Air Force fighters, bombers and logistic units.

The two officials were in a hurry to learn the answers to a number of questions. What type of air forces were to take part? Were Air Force combat weapons and equipment in place? There were thousands of questions they wanted to ask. General Lasidun (phonetic) answered them completely. General Lasidun (phonetic) is the United States Air Force XO. He can answer all questions concerning the United States Air Force.

Answering questions raised by his superiors is one of Lasidun (phonetic) main tasks. As far as Air Force personnel are concerned, they only know from the sign on the door of his office that he is the Air Force Deputy Chief of Staff for Plans and Operations. His simple title indicates that he has major responsibilities. He is the person people hope can answer all questions concerning the Air Force. The questions may come from Air Force commanders, the White House, the Army, the Navy and Congress. He even knows the combat status of every aircraft, the status of every operational unit and the technical capability of every pilot.

During an emergency, his office becomes an intelligence exchange. A dozen or so telephone lines are constantly busy. His work is to anticipate future problems and prepare answers to questions. So-called future possibilities are thing that may occur in a few hours or 30 years in the future.

In the process of answering questions, General Lasidun (phonetic) obtains assistance from six office chiefs responsible for planning, operational requirements, units, operations, weather and modelling, and simulation and analysis. These one or two star generals all provide their own views, finally reaching consensus, providing a feasible recommendation for Air Force missions and decision making by superiors.

As the Deputy Chief of Staff for Plans and Operations, General Lasidun (phonetic) is not in charge of any operational unit. His role is to ensure that operational units do not encounter any obstacles when carrying out their missions. For example, in the middle of October of 1994 the Air Force canceled plans for a night launch of an early warning satellite. The reason for this cancellation was that the technicians had discovered foreign matter in the fuel. It was the responsibility of General Lasidun (phonetic) to ensure that the Air Force had the total support of the Defense Department in this matter. If it was necessary for an aircraft to fly to Vandenburg Air Force Base in California to deliver emergency parts to ensure the launch of the satellite, then it was his responsibility to ensure this aircraft went when it was called.

Of the six office chiefs assisting General Lasidun (phonetic), Chief of Operations Maikaxi (phonetic) is one of the more important. His is an important role. He is called the "XOO", with one more "O" than his boss. During the Gulf War, Maikaxi (phonetic) was the eyes and ears of the "XO".

General "Lasidun" is the Air Force delegate to the Joint Chiefs of Staff. He often discusses joint operations problems with Army and Navy officers of his own rank. The Joint Chiefs of Staff secure conference room is very spartan, without a single window in the entire room. Each time Lasidun (phonetic) is at a meeting here, he is filled with a sense of urgent responsibility.

General Lasidun (phonetic) does his job strictly according to his duties. He stresses that he does not need to tell every commander how to perform a specific task. He says: "my primary task is to determine policy and assign responsibility and resources. I can relay orders to aerial command headquarters for

them to provide a strike force composed of active and reserve units, but i do not need to point out which units to use.

Unlike the Army and Navy, the Air Force Deputy Chief of Staff for Plans and Operations is also responsible for the plans and operations budget. He works closely with the office chief for operational requirements, presenting budget programs for all major missions or operational requirements for the Air Force. As the Air Force Deputy Chief Of Staff for Plans and Operations, General Lasidun (phonetic) has a number of other duties, such as participating in Air Force legislation.

Negotiations with congress is another major responsibility of Lasidun (phonetic). Whenever a piece of legislation threatens the Air Force, he will go to congress for reconciliation.

For example, last year, when congress proposed ending new appropriations for development and modifications to bombers, (continued on page 66)

Page 66

(continued from page 68) General Lasidun (phonetic) pointed out in congress that ending production of B-2 bombers and development of conventional ordnance materials for B-52 and B-1 bombers would endanger the United States' important interests. Through coordination with committees in congress, Lasidun convinced them to lift their ban on appropriations.

As the highest-ranking resource officer in the Air Force, Lasidun has, of course, become a member of the Defense Department's Planning and Resources Committee. He has a major say in which old airplanes are retired and which new airplanes replace them.

General Lasidun's work requires a high degree of timeliness. After the Gulf crisis was put down, he accepted a new task, which was to formulate short, medium, and long term plans for the long term stationing of U. S. Air Force troops in the Gulf region to prevent Iraqi military adventures. This issue was brought up by the commanding officer of the U. S. Central Military Command. Lasidun received these instructions at 7 a.m., and his superior demanded that he bring him a plan by noon the same day. Situations like this are quite normal for Lasidun, and he sees them as no problem. At twelve noon, he took the materials he had prepared and walked confidently into his boss's office to await his signature. He had completed his mission on time.

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